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Mr. William F. Caton
Office of the Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D. C. 20554

Re: In the matter of Amendment to the Commission's Rules regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, ET Docket No. 95-183 and Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz, PP Docket No. 93-253.

Dear Mr Caton:

Enclosed herewith is one (1) original, and 5 (five) copies of our Petition for Reconsideration submitted in response to the Report and Order and Second Notice of Proposed Rule Making in the above captioned proceeding.

Sincerely,

COMSEARCH

Christopher R. Hardy
Vice President, Microwave and Satellite Services
Enclosure

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Amendment of the Commission's) ET Docket No. 95-183
Rules Regarding the 37.0-38.6 GHz and) RM-8553
38.6-40.0 GHz Bands)
)
Implementation of Section 309(j) of the) PP Docket No. 93-253
Communications Act -- Competitive)
Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz)

To: The Commission

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PETITION FOR RECONSIDERATION

In response to the Report and Order and Second Notice of Proposed Rule Making ("R&O") released in the above reference proceeding, Comsearch hereby petitions the Commission to reconsider and clarify certain rules adopted in the "R&O".

We applaud the Commission's efforts in this proceeding to facilitate more effective use of the 39 GHz band. However, we have identified several technical areas which require modification to further this goal. Specifically, our comments will pertain to the Commission's proposed Rules for Frequency Coordination Procedures, Frequency Coordination Distance, and Antenna Standards in the 39 GHz band.

Frequency Coordination Distance

We agree with the Commission's use of Section 101.103(d) of the Rules as a template for frequency coordination procedures in the 39 GHz band. The Part 101 coordination process, which includes notification and response between licensees sharing spectrum, has been proven over time to minimize potential interference while maximizing the efficient use of the spectrum. An essential component of the process is the identification of licensees which are party to a notification. The potentially affected parties are identified as those within an industry defined coordination distance of the proposed facilities. Based on "worst case" assumptions, the coordination distance is chosen to ensure not only that interference is *unlikely* at greater distances, but also that **all** potentially affected parties will receive notification. The Commission has apparently ignored this distinction in selecting coordination distance proposed in the "R&O".

In the "R&O" the Commission adopts a seemingly arbitrary distance of 16 km beyond which licensees are not required to exchange coordination information with other potentially affected licensees.¹ Not only does this distance not provide any margin for differential path fading, it is so short that operational interference severe enough to prevent a receiver from attaining even a minimum BER will be experienced on occasion without coordination having taken place. Even if one accepts full correlation between the fading of the desired signal and interfering signal(s), which is often true for rain fading but is not true for multipath fading, a minimum C/I of perhaps 15 dB (a typical figure for today's radio equipment) must be achieved to reach a BER of 10^{-6} . C/I ratios of

¹ R&O at 69, Final Rules at §101.103(i).

less than 15 dB are quite possible with the interfering transmitter located over 16 km away from the victim receiver.² Large EIRP differences and multipath upfading of the interference path would result in even lower C/I ratios or in harmful interference at greater distances. We are thus in fundamental disagreement with the idea that the “propagation characteristics of this spectrum” support a coordination distance of only 16 km.³

In addition, more efficient radio modems require higher C/I ratios for operation. These higher C/I requirements will increase the potential for interference at greater distances. Therefore, a coordination distance of only 16 km provides a disincentive to the introduction of more spectrally efficient radios to the 39 GHz band.

The Commission currently does not specify a coordination distance for point-to-point microwave systems in Rule Part 101⁴. This criteria has always been determined by the industry and we see no reason why this process should be any different for the 39 GHz band. If the Commission feels compelled to codify a coordination distance for 39 GHz, it should specify a default distance large

² With a 20 km interference path length, a 3 km victim path length, boresight to boresight antenna coupling, the interfering transmitter EIRP 6 dB higher than the desired transmitter EIRP, and 0.15 dB/km atmospheric attenuation, the C/I is 13 dB.

³ R&O at 69.

⁴ FCC Rule Part 101.103 (d)(1), “Proposed frequency usage must be prior coordinated with existing licensees, permittees and applicants in the area, and other applicants with previously filed applications, whose facilities could affect or be affected by the new proposal in terms frequency interference on active channels, applied-for channels, or channels coordinated for future growth.”

enough to preclude the possibility of harmful interference. We suggest that 50 km be used. This default distance could be employed in the absence of industry accepted criteria similar to the use of the default interference criteria specified in Rule Part 101.105(c)(2). The use of a “larger” default coordination distance will allow the industry sufficient flexibility to modify coordination criteria as technology and the interference environment changes with time. By codifying the criteria to 16 Km, the industry may find itself at the mercy of an arbitrary and illogical requirement. If the industry agrees to adopt a more stringent coordination distance criteria, certain licensees could choose to ignore the recommendation citing the more lenient FCC criteria⁵. Just as undesirable would be the requirement on users of newer technologies or services to coordinate at 16 km where it can be shown that a shorter distance would be applicable. The requirement of a 16 km coordination distance in the 39 GHz band has no foundation and is contrary to the intent and spirit of prior coordination found in Rule Part 101.

Frequency Coordination Procedures

The proposed Rules require coordination of “facilities ... located within 16 kilometers of the boundaries of a Basic Trading Area”.⁶ The wording of §101.103(i) is vague as to the coordination requirements for rectangular service areas and grandfathered single links. This section should be modified to **make** it clear that coordination is required among all co-channel and adjacent channel systems **within** the coordination distance. We propose the following modifications to Section 101.103(i):

⁵ The latest National Spectrum Managers Association draft recommendation for coordination in the 39 GHz band reflects a boresight coordination distance of at least 38 km.

⁶ Final Rules at §101.103(i).

(i)(i) When the licensed facilities are to be operated in the band 38,600 MHz to 40,000 MHz and the facilities are located within 16 (or 50 as we have proposed) kilometers of the boundaries of a ~~Basic Trading Area~~ licensed service area, each licensee must complete the frequency coordination process of subsection 101.103(d) with respect to neighboring ~~BTA~~ service area licensees and existing licensees within its ~~BTA~~ service area that may be affected by its operation prior to initiating service.

Antenna Standards

The Commission has chosen to permit point-to-multipoint systems by allowing licensees to use omnidirectional or sectored antennas not meeting Category A or B. However, these antennas may be required to be replaced with Category A (directional) antennas if necessary to resolve an interference situation.⁷ Effectively, this requirement confers a secondary status upon point-to-multipoint users that could impede the development of these systems. To fulfill the Commission's intent to allow point-to-multipoint operation, the Rules should be amended to exclude omni or sectored antennas from the directional Category A or B radiation pattern requirements.

Respectively Submitted,

COMSEARCH

Prepared By: 

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⁷ R&O at 65, Final Rules at §101.115.